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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|----------------------|--------------------------|------------------|
| 10/524,261 | 03/10/2005 | Masato Yoshikawa | Q85730 | 9874 |
| 23373 7590 04/20/2007 SUGHRUE MION, PLLC 2100 PENNSYLVANIA AVENUE, N.W. SUITE 800 WASHINGTON, DC 20037 | | | EXAMINER ULLAH, ELIAS | |
| | | | ART UNIT 2812 | PAPER NUMBER |
| SHORTENED STATUTORY PERIOD OF RESPONSE | | MAIL DATE | DELIVERY MODE | |
| 3 MONTHS | | 04/20/2007 | PAPER | |

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

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|------------------------------|--------------------------------------|---|--|
| Office Action Summary | Application No. 10/524,261 | Applicant(s) YOSHIKAWA ET AL. | |
| | Examiner Elias Ullah | Art Unit 2812 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 January 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 74-112 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 74-80, 82-98 and 100-112 is/are rejected.
- 7) ☒ Claim(s) 81 and 99 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 March 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date <u>2/11/2005, 2/13/2007</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This office action is in a response to restriction requirement dated January 24, 2007.

Election/Restrictions

1. Applicant's election without traverse of claims 74-112 in the reply filed on January 24, 2007 is acknowledged.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 74-80,82-98 and 100-112 are rejected under 35 U.S.C. 102(b) as being anticipated by Kataoka et al. (5,660,646).
4. As to claims 74, and 87-88, Kataoka et al. shows a method of forming a metal oxide semiconductor membrane having a large surface area, wherein coating liquid in which metal oxide microparticles are dispersed in a binder (col. 5, lines 30-35) is applied to a substrate having a transparent electrode (col. 4, lines 24-35) formed on a surface thereof and is dried so as to form a metal oxide containing coating, and the metal oxide (col. 4, lines 52-65) containing coating is subjected to ultraviolet irradiation treatment (col. 8, lines 9-15) so as to remove the binder thereby forming a metal oxide semiconductor membrane having a large surface area.

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5. As to claim 75, Kataoka et al. shows the wavelength of ultraviolet light to be used for the ultraviolet irradiation treatment is in a range of from 1 to 400 nm (col. 12, lines 11-22).

6. As to claim 76, Kataoka et al. shows the ultraviolet irradiation treatment is conducted in the presence of gas of at least one selected from a group consisting of ozone, oxygen, fluorine atom containing compound, and chlorine atom containing compound gases (col. 9, lines 10-30).

7. As to claims 77-80 and 82-84, Kataoka et al. shows the metal oxide semiconductor membrane is a membrane which is made of substantially only a metal oxide; wherein the metal oxide is titanium oxide, zinc oxide, tin oxide, or any of these metal oxides doped with other metal or other metal oxide (col. 4, lines 52-65).

8. As to claim 85, Kataoka et al. shows the binder is an organic polymer (col. 5, lines 30-35).

9. As to claim 86, Kataoka et al. shows the thickness of the metal oxide semiconductor membrane is 10nm or more (col. 9, lines 10-30).

10. As to claim 89, Kataoka et al. shows a method of forming a transparent electrode wherein coating liquid in which conductive metal oxide (col. 4, lines 52-65) microparticles are dispersed in a binder is applied to a surface of a substrate and is dried so as to form a conductive metal oxide coating the binder (col. 5, lines 30-35) is then removed from the conductive metal oxide containing coating so as to form a coating type transparent electrode membrane (col. 4, lines 24-35) and a conductive metal oxide is deposition so as to form a vapor deposition(col. 5, lines 11-15) type

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transparent electrode membrane thereby providing a lamination type transparent electrode.

11. As to claim 90, Kataoka et al. shows a method of forming a transparent electrode, wherein a conductive metal oxide is deposited on a surface of a substrate so as to form a vapor deposition type transparent electrode membrane by vapor deposition (col. 5, lines 11-15), coating liquid in which conductive metal oxide microparticles are dispersed in a binder is applied to the vapor deposition type transparent electrode (col. 4, lines 24-35) membrane and is dried so as to form a conductive metal oxide containing coating and then the binder (col. 5, lines 30-35) is removed from the conductive metal oxide containing coating and then the binder is removed from the conductive metal oxide containing coating so as to form a coating type transparent electrode membrane thereby providing a laminating type transparent electrode.

12. As to claims 91-92, Kataoka et al. shows the binder is removed by plasma treatment (col. 8, lines 10-14).

13. As to claims 93 and 96-98, Kataoka et al. shows the plasma treatment is conducted in the presence of gas of at least one selected from a group consisting of oxygen, fluorine and chlorine gases (col. 9, lines 10-30).

14. As to claim 94, Kataoka et al. shows the binder is removed by ultraviolet irradiation treatment (col. 8, 9-15).

15. As to claim 95, Kataoka et al. shows the wavelength of ultraviolet light to be used for the ultraviolet irradiation treatment is in a range of from 1 to 400nm (col. 12, lines 11-22).

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16. As to claim 100, Kataoka et al. shows the binder is polyalkylene glycol (col. 5, lines 30-36).

17. As to claims 101-102, Kataoka et al. shows the vapor deposition for forming the vapor deposition type transparent electrode membrane is physical deposition or plasma CVD; the vapor deposition type transparent electrode membrane is at least one of selected from a group consisting of In_2O_3 (col. 4, lines 55-65).

18. As to claims 103-104, Kataoka et al. shows the thickness of the vapor deposition type transparent electrode membrane is in a range of from 0.1 to 100nm and from 10 to 500nm (col. 9, lines 10-30).

19. As to claims 105-112, Kataoka et al. shows a transparent electrode substrate having a transparent electrode membrane which is formed on a substrate surface; a metal oxide semiconductor membrane on a transparent electrode of a transparent electrode substrate; the vapor deposition is CVD or plasma CVD; the metal oxide semiconductor is a membrane formed by depositing titanium oxide or oxide doped with other metal; the metal oxide is made of titanium oxide (col. 4, lines 51-65 and col. 5, lines 1-15).

Allowable Subject Matter

20. Claims 81 and 99 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The following subject matter is allowable; the primary particle diameter of the conductive metal oxide micro-particles is in a range of from 0.001 to 5 μm .

Conclusion

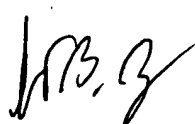
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Elias Ullah whose telephone number is (571) 272-1415. The examiner can normally be reached on weekdays, between 8AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, MICHAEL LEBENTRITT can be reached on (571) 272-1873. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

SCOTT B. GEYER
PRIMARY EXAMINER

E. Ullah
4/12/07.

 4/16/07